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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/021,902	12/17/2001	David Thiede	737.011US1	1988

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EXAMINER	
WILLIAMS, THOMAS J	

ART UNIT	PAPER NUMBER
3683	

DATE MAILED: 12/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/021,902	Applicant(s) THIEDE ET AL.
	Examiner Thomas J. Williams	Art Unit 3683

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *11*.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. Acknowledgment is made in the receipt of amendment B filed September 26, 2003 and the information disclosure statement filed September 26, 2003.

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 26, 2003 has been entered.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1, 3, 4, 6-8, 12-14, 19, 23-28, 31-34, 42, 44 and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by US 3,519,805 to Throne-Booth.

Re-claim 1, Throne-Booth discloses a system comprising: a processor 10 coupled to a vehicle 16; a brake controller is coupled to the processor (column 1 line 43; it is disclosed that signals from the computer control the vehicle deceleration, see column 6 lines 70-75); a first range detector is coupled to the processor and the vehicle, see figure 3 (a position sensing device is interpreted a range detector, see column 1 lines 49-50); the processor executes instructions to operate the brake controller to selectively apply and release a brake of the vehicle based on a comparison of a deceleration profile with range data from the first range detector and a speed of the vehicle, column 1 lines 46-68 and column 2 lines 45-68 to column 3 lines 1-22.

Column 5 lines 4-36 and figure 1 describes a situation in which the deceleration of the vehicle is altered based upon the sensed information. In figure 1 the broken line indicates the actual deceleration of the vehicle relative to the desired deceleration. Furthermore, the actual deceleration is altered when it is sensed that a significant deviation from the desired deceleration is occurring, such as at X and interpreted as insufficient deceleration. At this point the deceleration is increased, such as by increasing a brake force, which is one well known method of increasing the deceleration of a vehicle. Keeping in mind that Throne-Booth clearly discloses that the system is intended to be used conjunction with existing brake systems on vehicles, see column 1 lines 40-43. Figure 1 also illustrates the situation in which the deceleration of the vehicle exceeds the desired deceleration, interpreted as when the broken line is below the desired deceleration profile. In this situation the brake force would be reduced.

Re-claim 3, the tachometer provides speed information of the vehicle to the processor, tachometers are defined as devices that measure rotational speed

ta·chom·e·ter (tà-kòm'î-ter, te-) *noun*: An instrument used to measure the rotations per minute of a rotating shaft.[1]

Re-claim 4, it is the opinion of the examiner that all data devices on a vehicle are coupled to the on-board computer or processor, thus the tachometer being coupled to the processor is technically coupled to the speedometer by at least via the processor. The phrase coupled do not imply a direct connection.

Re-claims 6 and 7, the use of wheel speed sensors as vehicle speed sensor is well known in the art; coupling wheel speed sensors to a trailer wheel or a tractor wheel is well known in the art especially with vehicles equipped with anti-lock brake systems, thus providing a means of ascertaining accurate vehicle speed. This is supported by the Automotive Handbook citation provided to the applicant in the PTO-892 form mailed November 22, 2002.

Re-claim 8, Hall effect sensors are one well known form of wheel speed sensors, wheel speed sensors are generally connected to the processor. This position is supported by the Automotive Handbook citation provided to the applicant.

Re-claim 12, the advance of the vehicle towards a desired stopped position is broadly interpreted as a vehicle direction data or information, the processor receives all the information generated.

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Re-claim 13, a movement of the vehicle is determined by the tachometer of Thorne-Booth. It is well known in the vehicle arts to use a Hall effect sensor as a wheel speed sensor, which is categorized as a tachometer. Both sensors are designed to measure speed of rotation. This is supported by the Automotive Handbook citation provided to the applicant.

Re-claim 14, Throne-Booth discloses a method comprising: receiving distance data from a range detector based on a distance between a vehicle and an obstacle; receiving speed information; generating a correction signal based on a comparison of the distance data and speed information with a deceleration profile; and modulating a brake of the vehicle based on the correction signal, see summary and column 4 lines 63-75 to column 5 lines 1-18.

Re-claim 19, the advance of the vehicle towards a desired stopped position is broadly interpreted as a vehicle direction data or information.

Re-claim 23, a wheel speed sensor falls into a category of a tachometer, which are devices that detect rotational speed.

Re-claim 24, a wheel speed sensor or tachometer measures distance over time, in essence distance data is included in the data received from a wheel speed sensor.

Re-claim 25, one method of modulation brake pressure is by transmitting pulses to a brake valve. As is known in the art brake systems are equipped with brake valves, for controlling the brake pressure transmitted to the brake actuator. By transmitting pulses to the brake valve one can control the increase or decrease of brake pressure in the brake actuator ultimately controlling the actual deceleration of the vehicle.

Re-claim 26, Throne-Booth discloses a method comprising: receiving speed information from the vehicle, such as from a tachometer; receiving obstacle information from a sensor

insensitive to speed, the sensor is coupled to the vehicle, such as distance to a predetermined stopping position d1; determining a deceleration profile based on speed information and the obstacle information, see figure 1; modulating a brake system of the vehicle based on the deceleration profile, see figure 1 specifically noting the change in actual deceleration (broken line) relative to the desired deceleration (solid line). The position sensor is insensitive to speed, since it is disclosed as a distance pulse counter and depends solely upon the position of the vehicle relative to the desired stop position.

Re-claim 27, a data bus is interpreted by the examiner as an information line between the sensor (such as wheel speed sensor 14) and the processor 10, see figure 3. See following definition:

> **bus** (bŭs) *noun*: *Computer Science*. A parallel circuit that connects the major components of a computer, allowing the transfer of electric impulses from one connected component to any other.[2]

As best understood by the examiner a data bus is merely a bus (or line) for transferring data between a processor (or computer) and a component, such as a sensor. If the applicant intends to define a data bus as something other than the accepted meaning then a clarification is requested by the examiner. The applicant is therefore challenged by the examiner to prove that a data bus is something other than an information line between major components of a computer.

Re-claim 28, the speed information includes a signal received from a wheel speed sensor 14. A wheel speed sensor can be defined as a tachometer 14, both measure speed of rotation.

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Re-claims 31-33, common vehicle brake components include dump valves and hold valves which are normally controlled by electrical signals. Thorne-Booth discloses that the system is designed for use with standard brake equipment, many vehicles are equipped with brake systems having dump valve and hold valves, such systems are well known in the art.

Re-claim 34, Throne-Booth discloses a method comprising: receiving an electronic speed signal (from tachometer) for a vehicle; an electronic direction signal (from the tachometer and thus speed signal); an electronic condition signal for the vehicle from a sensor insensitive to speed (such as position of the vehicle relative to the stop position); and modulating a brake system of the vehicle to restrict vehicle movement based on the speed signal, the direction signal, and the condition signal. The position sensor is insensitive to speed, since it is disclosed as a distance pulse counter and depends solely upon the position of the vehicle relative to the desired stop position.

Re-claim 36, the brake system remains energized even after the vehicle reaches the stop position, see abstract. A stopping control apparatus is interpreted as stopping the vehicle at a desired position and maintaining the vehicle at the desired position.

Re-claims 37 and 39, the brake system is energized (interpreted as increasing or decreasing the vehicle deceleration) when the electronic direction signal (interpreted as the vehicle speed signal) indicated that the vehicle is moving. Any movement, forward or rearward, will be detected by the tachometer which provides the vehicle speed signal to the processor.

Re-claim 40, the range information of the vehicle relative to the stop position (or obstacle) is utilized by the processor to modulate the brake system of the vehicle.

Re-claims 42, 44 and 45, Thorne-Booth discloses a modulation in brake pressure, indicated by an ability to change the vehicle deceleration, thus a reduced deceleration is achieved by a reduction in brake pressure or release of a brake in the brake system.

5. Claims 34, are rejected under 35 U.S.C. 102(e) as being anticipated by US 6,450,587 to MacGregor et al.

MacGregor et al. discloses a method comprising : receiving an electronic speed signal for a vehicle (column 6 lines 6-15); receiving an electronic direction signal (also the speed signal); receiving an electronic condition signal for the vehicle from a sensor insensitive to speed (column 5 lines 44-57); and modulating the brake system of the vehicle to restrict vehicle movement based on the speed signal, the direction signal, and the condition signal.

Re-claim 35, the condition signal is one of a open door, or a lift signal.

Re-claim 36, the brake system is energized when the speed signal indicates the vehicle is substantially stationary, see column 24 lines 8-14.

Re-claims 37-39, the brake system is energized when the direction signal indicates the vehicle is moving (interpreted as either forward or rearward), specifically if the vehicle speed is below a predetermined value. A vehicle motion sensor will detect forward and rearward motion.

Re-claim 40, when an unsafe condition for movement is detected (due to an obstacle, such as a person) the brake system is modulated to prevent vehicle movement. Range data is used to determine the distance to the obstacle.

Re-claim 41, the unsafe condition is interpreted as a hazard, upon which an emergency stop procedure will be executed.

Re-claim 42, the vehicle brake is released if the speed is above a predetermined value.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 2, 9-11, 15-18, 20-22, 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thorne-Booth in view of US 5,734,336 to Smithline.

Re-claim 2, Thorne-Booth fails to teach a wireless transmission system for transmitting range information to the processor.

Smithline teaches a range detector having a transmitter and a wireless receiver coupled to a processor. It would have been obvious to one of ordinary skill in the art as a matter of design choice to have provided the range detector and processor of Thorne-Booth with a transmitter and wireless receiver as taught by Smithline, wireless systems are easily retrofitted to existing vehicles and require less materials (through the elimination of wires) thus reducing weight and cost.

Re-claims 9-11, 15-18, 20-22, 29 and 30, Thorne-Booth is silent regarding the use of a plurality of range detectors facing different directions, or the types of detectors used (such as radar and ultrasonic). Each of these range detecting devices is well known in the art as illustrated by Smithline. Furthermore, the use of a plurality of devices facing different directions is taught by Smithline.

It would have been obvious to one of ordinary skill in the art as a matter of design choice to have incorporated the use of a plurality of sensing devices in the apparatus of Thorne-Booth as taught by Smithline, thus enabling the system to avoid unwanted contact with objects within approximately a 360 degree angle. The specific type of range device used at each position is considered a design choice. The artisan will identify and use the best type of range detector based upon the requirements at that position.

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thorne-Booth in view of US 3,918,058 to Noyori et al.

Thorne-Booth fails to teach the use of a Doppler radar sensor as the vehicle speed sensor. Noyori et al. teaches a speed sensor that utilizes the Doppler effect. It would have been an obvious matter of design choice for one of ordinary skill in the art to have utilized a Doppler radar sensor to detect vehicle speed in the apparatus of Thorne-Booth as taught by Noyori et al., the Doppler radar sensor system is functionally equivalent to a wheel speed sensor.

10. Claim 43 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thorne-Booth in view of GB 2,334,560 to Ingo.

Thorne-Booth fails to teach modulating or increasing the vehicle brake pressure if it is determined that the vehicle is moving from a parked position. Ingo teaches an automatic braking

operation during a parking condition that is triggered if a vehicle speed is sensed (indicating direction) and if the vehicle speed being below a limit value. It would have been obvious to one of ordinary skill in the art to have provided the apparatus of Thorne-Booth with a means of increasing or modulating brake pressure when it is sensed that the parked vehicle is inadvertently moving as taught by Ingo, thus providing a means of maintaining the parked vehicle in the desired stop or parked position.

Response to Arguments

11. Applicant's arguments filed September 26, 2003 have been fully considered but they are not persuasive. The prior art of record provides support for the positions asserted by the examiner in the above rejection. Specifically the use of tachometers for determining a vehicle speed, see Thorne-Booth and Pietsch et al. The use of Hall Effect sensors as wheel speed sensors is supported by the Automotive Handbook citation, and by MacGregor ('587; column 17 lines 38-41). The examiner cites pages 628-655 of the Automotive Handbook; regarding the position that dump valves and hold valves are common components in vehicle brake systems, specifically the figures. Further evidence supporting this position is provided for in MacGregor ('587; figure 19); Yano et al. ('483; figure 21); and DE 195 43 582 (figure 1) cited by the applicant.

With regards to the modulation of brake pressure in Throne-Booth attention is called to figure 1, which clearly illustrates a changing actual deceleration (broken line) with regards to a desired deceleration. Furthermore, Throne-Booth clearly discloses that the apparatus is intended to make use of systems already part of the vehicle, such as the brake system (column 1 lines 40-43). As is well known to anyone who has operated a vehicle the surest way to affect deceleration

of a vehicle is to simply use the brake system. It is believed that the examiner's position is supported in the disclosure of Throne-Booth.

As stated in the rejection the phrase "data bus" is understood by the examiner as defining a communication or information line between two components of an electrical or computer system. If the applicant intends to redefine what a data bus is then clarification is requested by the examiner and will be made of record. Yasuno ('944), Ise et al. ('656), and Skarvada ('173) are each examples of how a data bus works in conjunction with the vehicle computer and various sensors (specifically wheel speed sensors). However, it is understood that many types of sensor information can be transferred over the data bus to the computer. In short it is the position of the examiner that the phrase "data bus" is well understood by many and needs no further clarification.

The motivation for modifying Throne-Booth in view of Smithline was provided by the examiner. Clearly replacing a wire system with a wireless system will reduce weight and installation costs. The reduction in wires alone will result in a reduced weight. Furthermore, the installation costs should be lower, since installing wiring harnesses and the wires themselves will be time consuming. A wireless system merely requires the installation of the sensors and the receivers. Clearly the applicant must appreciate the cost savings with regards to materials and manpower.

The motivation for modifying Throne-Booth in view of Noyori et al. was provided by the examiner. It is the position of the examiner that one of ordinary skill in the art will realize the various methods one can utilize to determine a vehicle velocity. Substituting one method for

another is considered a design choice. In the case of Noyori et al. the benefits are increased accuracy, which alone is considered proper motivation.

Conclusion

12. Any inquiries concerning this communication or earlier communications from the examiner should be directed to Thomas Williams whose telephone number is (703) 305-1346. The examiner can normally be reached on Monday-Thursday from 6:30 AM to 4:00 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Lavinder, can be reached at (703) 308-3421. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

TJW

November 20, 2003

THOMAS WILLIAMS
PATENT EXAMINER

Thomas Williams
11.20-03
AU 3683